We claim:

1. A method comprising:

outputting an oscillating wave towards a surface of an optical disc;

detecting a proximity signal in response to the oscillating wave being output

5   towards the surface of the optical disc, the proximity signal denoting closeness of

the oscillating wave to the surface;

determining a plurality of peaks within the proximity signal, each peak

corresponding to the oscillating wave crossing the surface of the optical disc;

correlating a time at which each peak within the proximity signal occurs with a

10   value of the oscillating wave at the time to yield a plurality of time-value pairs;

and,

approximating a topology of the surface of the optical disc from the plurality of

time-value pairs.

2. The method of claim 1, further comprising initially generating the oscillating

15   wave.

3. The method of claim 2, wherein generating the oscillating wave comprises

oscillating an assembly generating a constant beam to and from the optical disc,

such that the beam results in the oscillating wave due to oscillation of the

assembly.

20   4. The method of claim 3, wherein detecting the proximity signal comprises

detecting the beam reflected by the surface of the optical disc with the assembly,

the proximity signal determined as a value of the beam reflected by the surface of

the optical disc over time.

5. The method of claim 1, wherein outputting the oscillating wave towards the

25   surface of the optical disc comprises outputting the oscillating wave towards an

irregular surface of the optical disc.

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6. The method of claim 5, wherein outputting the oscillating wave towards the irregular surface of the optical disc comprises outputting the oscillating wave towards a slightly warped surface of the optical disc.

7. The method of claim 1, wherein outputting the oscillating wave towards the surface of the optical disc comprises outputting the oscillating wave towards one of an optically writable label side and an optically writable data side of the optical disc.

8. The method of claim 1, wherein outputting the oscillating wave towards the surface of the optical disc comprises outputting the oscillating wave towards the surface of one of a compact disc (CD)-type optical disc and a digital versatile disc (DVD)-type optical disc.

9. The method of claim 1, wherein outputting the oscillating wave towards the surface of the optical disc comprises outputting one of a triangle wave, a saw tooth wave, and a sinusoidal wave.

10. The method of claim 1, wherein determining the plurality of peaks within the proximity signal comprises determining a plurality of local maximums within the proximity signal.

11. The method of claim 1, wherein approximating the topology of the surface of the optical disc from the plurality of time-value pairs comprises curve-fitting a curve onto the plurality of time-value pairs to approximate the topology of the surface of the optical disc.

12. The method of claim 11, wherein curve-fitting the curve onto the plurality of time-value pairs to approximate the topology of the surface of the optical disc comprises using a beta-spline curve-fitting approach to approximate the topology of the surface of the optical disc.

13. The method of claim 11, wherein curve-fitting the curve onto the plurality of time-value pairs to approximate the topology of the surface of the optical disc comprises using a number of coefficients of a Fourier series of the plurality of time-value pairs to approximate the topology of the surface of the optical disc.

5 14. A computer-readable medium having a program stored thereon to perform a method comprising:

outputting an oscillating wave towards a reflective surface;

receiving a proximity signal detected in response to the oscillating wave being output towards the reflective surface, the proximity signal denoting closeness of

10 the oscillating wave to the reflective surface;

determining a plurality of local maximums within the proximity signal, each local maximum corresponding to the oscillating wave crossing the reflective surface;

correlating a time at which each local maximum within the proximity signal

15 occurs with a value of the oscillating wave at the time to yield a plurality of time-value pairs; and,

approximating a topology of the reflective surface from the plurality of time-value pairs.

15. The medium of claim 14, wherein outputting the oscillating wave towards the

20 reflective surface comprises outputting one of a triangle wave, a saw tooth wave, and a sinusoidal wave.

16. The medium of claim 14, wherein approximating the topology of the reflective surface from the plurality of time-value pairs comprises curve fitting a curve onto the plurality of time-value pairs to approximate the topology of the reflective

25 surface.

17. An optical disc surface-tracking assembly comprising:

a beam-generating mechanism to generate a beam output towards a surface of an optical disc, at least the beam-generating mechanism of the assembly

being oscillated to cause the beam to result in an oscillating wave;

a sensing mechanism to detect the beam reflected by the surface of the optical disc to yield a proximity signal as a value of the beam as reflected and detected; and,

5   a controller to track the surface of the optical disc by approximating a topology of the surface from a plurality of time-value pairs, each time-value pair including a time at which a peak within the proximity signal occurred and a value of the oscillating wave at the time.

18. The assembly of claim 17, wherein the surface of the optical disc is one of an

10   optically writable label region and an optically writable data region of the optical disc.

19. The assembly of claim 17, wherein the beam comprises an optical beam.

20. The assembly of claim 17, wherein at least the beam-generating mechanism of the assembly is oscillated in accordance with one of: a triangle wave, a square

15   wave, and a sinusoidal wave.

21. The assembly of claim 17, wherein the controller approximates the topology of the surface from the plurality of time-value pairs by curve-fitting a curve onto the plurality of time-value pairs.

22. A reflective surface-tracking assembly comprising:

20   a beam-generating mechanism to generate a beam output towards a reflective surface, at least the beam-generating mechanism of the assembly being oscillated to cause the beam to result in an oscillating wave;

a sensing mechanism to detect the beam reflected by the reflective surface to yield a proximity signal as a value of the beam as reflected and detected; and,

25   means for tracking the reflective surface based on the proximity signal and the oscillating wave.

23. The assembly of claim 22, wherein the means is further for approximating a topology of the surface from a plurality of time-value pairs, each time-value pair including a time at which a peak within the proximity signal occurred at a value of the oscillating wave at the time.

5   24. The assembly of claim 23, wherein the means is further for curve-fitting a curve onto the plurality of time-value pairs.

25. A mass storage device comprising:

an optical marking mechanism to at least optically write markings on a plurality of tracks of an optically writable label surface of an optical disc;

10   a movement mechanism to move the optical marking mechanism to and from the optically writable label surface of the optical disc;

an optical disc surface-tracking assembly to cause the movement mechanism to move the optical marking mechanism so as to track the optically writable label surface of the optical disc.

15   26. The mass storage device of claim 25, further comprising a rotation mechanism to rotate the optical disc.

27. The mass storage device of claim 25, wherein the optical marking mechanism is able to generate a beam output towards the optically writable label surface of the optical disc, and the optical disc surface-tracking assembly comprises:

20   a controller to cause the movement mechanism to oscillate the optical marking mechanism to and from the optically writable label surface of the optical disc, such that the beam yields an oscillating wave, and to approximate a topology of the surface from a plurality of time-value pairs, each time-value pair including a time at which a peak within a proximity signal occurred and a value of

25   the oscillating wave at the time; and,

a sensing mechanism to detect the beam reflected by the optically writable label surface of the optical disc to yield the proximity signal as a value of the beam as reflected and detected.

28. The mass storage device of claim 27, wherein the controller is to cause the movement mechanism to oscillate the optical marking mechanism to and from the optically writable label surface of the optical disc in accordance with one of: a triangle wave, a saw tooth wave, and a sinusoidal wave.

5   29. A mass storage device comprising:

an optical marking mechanism to at least optically write markings on a plurality of tracks of an optically writable label surface of an optical disc;

a movement mechanism to move the optical marking mechanism to and from the optically writable label surface of the optical disc;

10   means for tracking the optically writable label surface of the optical disc by causing the movement mechanism to move the optical marking mechanism.

30. The mass storage device of claim 29, wherein the means is further for approximating a topology of the optically writable label surface of the optical disc.

31. A method for manufacturing a mass storage device comprising:

15   providing an optical marking mechanism of the device to at least optically write markings on a plurality of tracks of an optically writable label surface of an optical disc by generating a beam output towards the optically writable label surface;

providing a movement mechanism of the device to move the optical marking

20   mechanism to and from the optically writable label surface of the optical disc; and,

providing an optical disc surface-tracking assembly of the device to cause the movement mechanism to oscillate the optical marking mechanism to and from the optically writable label surface of the optical disc, so that the beam is to yield

25   an oscillating wave, and to approximate a topology of the surface from a plurality of time-value pairs so as to track the surface, each time-value pair including a time at which a peak within a proximity signal occurred and a value of the oscillating wave at the time.